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ABSTRACT

This paper, written to inform members of the American Association for Counseling and Development (formerly the American Personnel and Guidance Association) about high technology developments and what counselors are doing in this area, reviews the transition of the United States and other developed nations from industrial to post-industrial societies, and discusses the effects on individuals and nations of economic upheavals, changes in work, and shifting expectations for productivity. The history of counselors' involvement with high technology is reviewed, and major industrial breakthroughs of the past 50 years are outlined. Emerging occupations are also described. The role of employment in people's lives is discussed as well as the role of education and counseling in training and retraining. The emotional stress of labor force changes is explored, particularly with respect to specific populations and regional factors. Two national priorities are identified: basic education, with emphasis on math and science, and the creation of new, long term approaches to training and retraining workers with obsolete skills and knowledge, in order to provide them with access to emerging work opportunities. The role of counselors and related specialists is discussed. The paper concludes with recommendations for counselors. (JAC)

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PEOPLE IN TRANSITION

IN

AN EMERGING TECHNOLOGICAL/SCIENTIFIC SOCIETY

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PEOPLE IN TRANSITION

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PEOPLE IN TRANSITION

IN

AN EMERGING TECHNOLOGICAL/SCIENTIFIC SOCIETY

Paper Developed by

Edwin L. Herr, Charles L. Lewis and Patrick J. McDonough

The popular concensus appears to be that, at best, the United States and the other developed nations of the world are in a transition period from an industrial society to a post-industrial society which will be as dramatic in its impact as the change from an agricultural to an industrial society in the early 1900's. Whether one uses terms like post-industrial age, technetronic age, electronic era, or Third Wave to describe the transitions underway, the effects are the same. Individuals and Nations are likely to be dramatically affected by economic upheavals, changes in work content and process, and shifting expectations for technological and personal productivity.

The United States has, in particular, been undergoing a major change from reliance on heavy industrial manufacturing of durable goods to an industrial base which rests upon advanced technological innovation applied to the production

of goods and a labor force engaged primarily in service occupations concerned with information generation and processing. The prevalent explanation is that high technology, encompassing major breakthroughs in electronics and computer-directed equipment, is triggering and driving this transition.

"High technology" is the HALLMARK describing a wide array of developments--computers, robots, television, space exploration, communication changes, linkages of new devices and techniques--all accompanied by new ways of producing and delivering products. The knowledge explosion and improved capability to store, retrieve, analyze and apply data and information have created a situation wherein we are capable of doing many more useful things than our economy can support. Nevertheless, it is widely predicted that the rate of change will only accelerate and that most people will need significant re-education to cope with these changes. Within this context, people's lives, how they work, live and enjoy leisure are seen as increasingly stressful. As a result, concern about the effects of "high technology" on human welfare, mental health and personal dignity is high on the agenda in the United States and other nations of the world.

Counselors' Historic Involvement with Technology

Counselors, guidance specialists and other human development workers have for the past 75 years helped persons

to understand themselves, their potential and how to utilize and benefit from the changes which have occurred in the economy, in lifestyles, the world of work, and in the multiple results of scientific breakthroughs. Counselors and guidance workers helped a basically agrarian society transform itself into an industrialized society by assisting people to adjust to new types of work in new environments. During several wars and "police actions" they have helped classify and place people into military jobs and then facilitate their post-war adjustment. Counselors helped people and institutions acclimate to a world involved in educational expansion brought about by the "baby boom" and the onset of the space age and they have helped to personalize the mass education that ensued.

Since the early part of the century, the empirical record of counselors' successes in helping people deal with the acquisition of knowledge, attitudes and skills related to career planning and decision making, work adjustment, rehabilitation, parenting, marital harmony, drug and alcohol abuse, stress management, and other categories of concern is quite impressive. The counseling research literature includes a number of studies demonstrating the effectiveness of different types of helping professionals -- counselors, student personnel workers, mental health specialists, career guidance practitioners, in facilitating relevant behavioral outcomes in people and in cost - benefit ratios which are very positive. Since the early part of the century our

business/industrial/military institutions have been assisted by delivery of trainable and productive workers and managers. As a result of this historical legacy, highly trained human development specialists have an important residual of knowledge and experiences which can help our country and people in the current transition. However, these specialists, like other workers, share stresses. They are concerned about their own future. They vary in degrees of readiness to deal with the challenges that confront them. Some are fully involved in the changes and operate effectively; some are in serious need of retraining for new roles; and, some plainly fear new technology and the changes it brings.

The Role of the American Association for Counseling and Development

Recognizing the above changes and our nation's need for assistance in these transitions, the American Association for Counseling and Development officers resolved to participate in, contribute to, monitor, analyze and keep their members and constituencies informed about changes developing and occurring in our federal, state, and business/industrial policy echelons.

The American Association for Counseling and Development (formerly the American Personnel and Guidance Association) and its Divisions and Branches were developed over the past

75 years as organizations to provide services, systems, and activities to promote, develop and improve counselors and human development specialists. As a professional society, AACD directly serves over 40,000 members and indirectly, through its organizational elements, probably serves an additional 60,000 graduate school educated persons who serve in counseling or related positions. Its activities, although predominantly in the United States, are shared in various ways by interaction with a worldwide network. Projects and activities to help counselors and related specialists to be ready to assist others in transition will be initiated directly by the general Association, encouraged, conceptualized by and coordinated for Branches and Divisions, and created and managed by members through their own respective institutions, agencies and enterprises.

The Association's first initiative as reflected in this paper, has been directed to assessing what we know about high technology developments and what our members and constituents are doing to react and adjust. We have analyzed and synthesized this information with the immediate goals of informing and stimulating involvement by counselors and related specialists. The results of this initial study will be disseminated to leaders and scholars within our Association and also to other interested persons who will be developing policies and programs to respond to the changes necessary to accommodate to a highly technical, information based, computer-driven world.

The origin and development of this Association paper and some related activities merit brief discussion. In the past year, several inquiries from significant national policy makers and other events suggested the need for new and positive awareness by our professional members of the effects of technology. During this recession the Association leaders have received knowledgeable questions from the media and other writers that indicated sensitivity to needs for career development and counseling in this changing world. Previously, recessions brought only simple placement and job - or candidate-information requests. Increased contacts with the military establishment reveal understanding that counselors and related specialists are needed not only to help in recruiting, but also to help prepare people for a new, highly technological world. In the Association, there is increased member interest in the use of technology as an aid in delivering counseling services. The Office of Technological Assessment, an arm of the United States Congress, approached AACD for input on papers and analyses they were preparing on computerization, employment and the work environment. As a result of these combined events, it was decided to assess developments with respect to high technology and an information based society, and to undertake initiatives to stimulate attention, involvement and participation of professional counselors. It is anticipated that position papers and/or strategies to guide the preparation and practice of counselors will be developed to

help our members and those whom they help to plan for opportunities in an age of advanced technology.

To that end, a letter was addressed to some 45 persons within the counseling profession with expertise or interest in futurism, new technology, computer-assisted guidance or who were considered avant-garde thinkers. Each was asked to comment on the role of counseling in an increasingly automated and technologically changing society, and the implications which advanced technology holds for employment, the worker, the work place and the life styles of our citizenry. As a stimulus to their thinking, a paper provided by the Office of Technological Assessment titled, "Information Technology, Automation and the Work Place" was sent along. The responders are listed in Appendix A. The responses were independently read and rated by several staff members, and eight persons were invited to a two day discussion and analysis of the data and information accumulated. Extensive notes and lists of ideas were generated at those sessions. The President-elect, Executive Vice President and Associate Executive Vice President agreed to synthesize the data and ideas in a paper to be shared with our Association leaders.

One paramount conclusion from this exercise has been that the worldwide recession, productivity upheaval and incorporation of high technology/robotics/genetic engineering into the world of work cannot be viewed only in terms of

changing occupations. The transitions in individual lives which these changes cause must also be analyzed with respect to possible counselor/human development specialist roles and contributions. The effects of these changes vary among different populations and sub-populations and both winners and losers in both the long and short run are expected. Who will be affected, how, and when are questions which counselors and human development specialists must consider in planning for future services. It is clear that the major problems associated with "high technology" or "advanced technology" are not scientific or technical problems, they are human problems.

The Changing World and Changes in Work

At times it appears that every articulate American has an article or speech on futurism, high technology change and the rate of change. Such observations often are laden with clever bits of information or descriptive passages, but are usually short on direct prescriptions or suggestions which are not self-serving. Human service specialists cannot, however, function on the basis of such vagaries. Further, counselors and related human development specialists are in a very unusual position in this milieu because they must personally adapt and change while simultaneously helping others change and cope. However, before distinctive strategies can be developed, a significant question must be

addressed. What is causing this re-evaluation of our society's occupational, economic and social future?

There is a concensus that the United States and other industrialized nations have shifted, and are continuing to shift from a primary reliance on heavy industrial processes to greater reliance on the mechanization of work, information generation/management, and creation of service industries.

A simplified view of the 50-year span, 1940-1990, suggests that the major industrial breakthroughs by decade were something like this:

1940's Plastics
1950's Transistors and Miniaturization
1960's Computers
1970's Microcomputers
1980's Genetics and Genetic Engineering

The first 40 of the 50 years discussed were dominated by engineers who controlled the design, manufacture and distribution of products. There was change, of course, but also an expanding demand for products flowing from heavy industrial processes (e.g. steel, autos, etc). Scientists are now more dominant than engineers. Products in the 1980s will be increasingly affected by the results of pure, sometimes esoteric, research by scientists. Research results are being applied to practical problems in energy, materials

development, information sciences, and genetic engineering. As these scientific advances have emerged, so has the cooperation between scientists, industrialists and investment brokers in creating new uses for new knowledge. This infusion of new scientific knowledge will further change industrial methods and organizations, medicine and health care and many other aspects of life.

As a result of mechanization and technological applications, only three percent of the current labor force is engaged in agriculture; thirty-two percent in the production of goods (mostly manufacturing); and sixty-five percent in service occupations. Perhaps even more dramatic is the statistic that of all new jobs added to the economy from 1956 to 1969, ninety percent were service occupations.

The HOW AND WHERE AND WHEN of products and productivity are in a state of upheaval. The "smokestack" industries and their labor forces are being hardest hit by changes at this moment. The long-range impact on the hard goods industry may be greater than that which has occurred with the soft goods industries over the past 25 years. For example, in terms of changes in the soft goods industries, the linen, clothing and shoe industries moved first from the northeastern United States to the south. On the other hand, the hard goods industry shifts thus far have been international in nature. The pressures in the worlds of finance and industry have combined to create a multi-national or international context

for the manufacturing, distributing, and marketing of hard or durable goods. Thus, many industries traditionally American based have now moved to other nations where government subsidies, cost of labor or availability of raw materials make such manufacturing more cost efficient.

Throughout history, the nature of work has been modified as new discoveries were made. Paid productive work has been a very significant element of the American heritage and personal imagery. It is a certainty, however, that the meaning of work for many Americans will be different in the future. For example, work is now being done in places other than traditional work places. The trend is to decentralization not centralization of work places, jobs and managerial decisions. In the process the characteristics of workers,and their expectations, and their possible roles change. Job obsolescence and the need for retraining is increasingly a fact of life, as are plant closings and large-scale industrial displacements and relocations. Traditional life-long occupations are changing and also decreasing in proportion of the total work opportunities available. Career ladders are likewise undergoing changes.

Work, jobs and employment are crucial to people, not only for survival, but also identity. Americans in particular have been blessed with relatively ample opportunities for work. In our capitalistic, free enterprise system, we have (with the exception of the great depression)

had no national labor or person power policy. We are dissimilar from most other industrialized nations in this regard. We differ also in that we elected to develop a system of education to be available to all people. Our American educational system has been linked to the expanding employee needs of a country blessed with population growth and a false belief that our raw materials were boundless and the environment invulnerable. The opportunities have been so good that nearly all could find work since there has been a demand for both skilled and unskilled workers. Those who had just immigrated, as well as those who elected not to be educated, have had reasonable chances to find work. Discrimination and stereotyping, as well as geographic loyalties, have hindered many, but education, training, retraining and relocation have been held out as the best choices for those in need of employment assistance. However, the nature of work and its availability is in a period of comprehensive change. Highly trained, educated and skilled workers and managers are now finding themselves obsolete or displaced by technology or relocated industries. We may soon have a reality in which some persons will be permanently unemployed, perhaps, unemployable. Jobs are being shared. Volunteer and helping efforts of an unpaid nature may become part of the total work identity of persons. Definitions of work are themselves in flux.

The WHO and HOW of education, training and retraining people for work is being scrutinized and debated. The

responsibility and relative efforts of schools, colleges, the military and industry are being challenged and changed. There is vigorous debate about curriculum reform and teacher competency. The need for more national attention to basic skills in math and science to accommodate to a highly technological society is a volatile political issue. The relative responsibility for vocational and technical education among schools, postsecondary schools, military education programs and industrial programs is a major focus of national conferences and discussions.

WHAT does all this mean and do to PEOPLE? There is an emotional toll as well as an economic toll when a person experiences fearful, real or imagined, work/career upheaval. There is often a secondary impact upon family and others when a worker is troubled. In a transitional period such as the United States is now experiencing, increased stress and anxiety about the skills and ability to cope become major concerns for large segments of the population. There is mounting evidence that unemployment is related to rises in child and spouse abuse, mental health problems, stress related illnesses, drug and alcohol abuse and other emotional problems.

The history of counseling and the related specialities in testing, measurement, evaluation, placement, advising, mental health, etc. reveals a central emphasis on occupational and vocational development whether the focus of

activity is rehabilitative, developmental or preventive in nature. In either case knowledge and skills possessed by well-trained counselors are needed at this historical juncture to assist and facilitate change in people so they may adapt to the emerging occupational and social conditions. They can also assist educational and industrial enterprises adopt content and processes responsive to human needs. People need help to learn that skill regeneration programs are not only nice, but necessary, and that adaptation to change will be the standard required in our society.

In considering training and retraining to help persons who have been displaced from the labor force, several cautions must be voiced. Although retraining is needed for persons unemployed because of personal defects (illiteracy, communication inability, lack of social and employment skills, etc.), it is also necessary for persons with obsolete skills as well. The current national training policy covers only a small part of the existing labor force and, for the most part, not those workers with obsolete skills who have had a positive, consistent work life. It has been calculated that public training programs now available serve less than eight percent of the population, primarily those who are economically and culturally disadvantaged.

Counselors and Related Specialist Roles in Previous Transitions

The history of counseling, guidance and human development specialists is rooted in a changing world of work brought on when hand work done at home or on a farm shifted to machine work in formal bureaucratic work-places. Early vocational specialists worked with individuals and some groups to help them assess themselves and new work opportunities, so they could prepare for the new roles required of them. This basic approach has been a major model in facilitating person-job fit, planning and work adjustment through much of this century.

The two world wars saw the early knowledge about evaluation, selection and placement transferred to new appraisal and classification assignment tasks. The great expansion of education in this century has likewise been accompanied by a concurrent development of specialists to help people evaluate themselves and the institutional opportunities available for their use. The explosion of higher education, growth in elementary and secondary school retention rates, personalization of mass education, and international competition in exploration of outer space have created needs for counseling, guidance and human development specialists which have often exceeded the availability of such professionals.

The heavy demands for guidance and counseling in the 1950s, particularly in educational settings, resulted in the inclusion of components in the National Defense Education Act designed to expand the numbers of trained counselors and available training institutions. In the ensuing years counselors and counselor educators have adapted to the changing needs of various adult populations. Counselors were prepared with new techniques to deal with stresses and stress responses in other populations as well as those in school or college. For example, counseling and related helping skills are extensively used with persons having marital or family problems, difficulty in coping with aging, or abusive use of alcohol or drugs. Counselors have learned from these experiences, and many are now in place and prepared to deliver vital information, support skills and special assistance for those persons immersed in the transitions caused by the incorporation of advanced technology. As a profession we are also responsible for sounding cautionary notes to those who will over-react, overpromise and otherwise repeat past errors in exaggerating counselor influence.

Some Population Considerations

Advancing technology and its associated transitions will not affect all people in the same way. In broad terms some of these transitions have already been described, and it is easy to envisage short-and long-range changes upon different groups--some positive, some negative, some relatively easy to

accommodate and some devastating, with ripple effects to others. For example, there are indications that physically handicapped persons and gifted persons will probably experience a net positive effect from these technological advances. The decentralization of work to home settings may influence family and child rearing behaviors in the direction of more traditional nuclear families. Career change and occupational change may actually accelerate in that several job or career changes will be commonplace in each worker's life pattern. In the short run there are indications that older persons will be called upon to perform jobs traditionally held by younger persons (e.g. fast food, home services, etc). Job opportunities will improve for some populations and decline for others. In the face of such circumstances, simplistic and undifferentiated solutions are not likely to work.

The employment/work/jobs situation resulting from the wide-spread application of advanced technology demands immediate attention. Congress and the administration are focusing on these issues, but, regrettably, more likely for political than substantive reasons. There is optimistic speculation that new employment opportunities will be created in sufficient numbers to offset the record high unemployment we have today. The administration touts the likelihood that the shift to a high technology/computer-related/robotic industrial society will be coupled with expanded desire for new products and will create new job opportunities. They

hope growth will accompany the shift to a technological society, similar to the growth that occurred during the shift from an agrarian society to an industrial one. Assumptions and projections are casually bantered about, but hard data are sparse with respect to the possibilities of new jobs and new demand and where it exists it tends to be more conservative in new job opportunities to offset job displacement than the popular rhetoric suggests.

Late in 1982, the Congressional Office of Technological Assessment released a volume titled, Informational Technology and Its Impact on American Education. Several tables are excerpted here to provide perspective on the problems of unemployed populations. For example, there has been a dramatic shift in numbers of jobs performed in various economic sectors, as shown in the following tables.

Table 1

Percent of Workers in U.S. Economic Sectors

	1948	1961	1976
Agriculture	10.8	6.9	4.2
Industry	43.2	38.6	35.1
Service	46.0	54.5	60.7
Total	100.0	100.0	100.0

Table 2

Some Representative Growth Figures

for the Information Industry

MAINFRAME COMPUTERS	1965	1975	1985 est.
Number Installed	23,600	62,800	77,600
Value in Billions of Dollars	$7.67	$33.6	$89.1

Table 6

Requirements for Computer Specialists*

OCCUPATION	1980	1990 Projected
Systems Analysts	243,000	400,000
Programmers	341,000	500,000
Equipment Operators	522,000	850,000
Data Entry Technicians	266,000	230,000
Service Technicians	83,000	160,000
Total	1,455,000	2,140,000

*Source Bureau of Labor Statistics, U.S. Department of Labor.

With over 10 million acknowledged to be out of work and seeking employment (the 10 million excludes those who have given up hope), the projected 500,000 to 600,000 growth in the information industry is relatively small. The automated information industry will also probably eliminate many unskilled and semi-skilled jobs now held by persons whose industries will become primarily oriented to information generation and management. The latter take many forms and tend to put at particular risk of unemployed persons in such categories as the following:

Chronically unemployed persons
Congenitally handicapped persons
Minority youth
Persons with obsolescent skills
Persons displaced by plant closings
Persons furloughed/laid off
Ex-offenders
Migrant workers
Immigrants and aliens
Elderly persons
Middle managers

Even those employed, however, include persons who are under-utilized, under stress, concerned about the future,

etc. as well as such special needs groups as follows:

Minorities
Women
Youth (teens, students, young adults)
Over-stressed workers
Underproductive persons
Overemployed (two jobs, too many hours)

The range of options open to these sub-populations varies considerably depending on such factors as the local economy, local industrial diversity, region of the country, age, family responsibility, mobility and educational achievement. The unemployed worker from a rubber plant in Akron, Ohio, or a steelworker in Youngstown, Ohio, has little positive prognosis for re-employment in that occupational area despite special training, retraining, counseling or whatever. The plants are closed--in the first case moved to South America, and in the other, declared obsolete and for sale in an unresponsive market.

The skills, knowledge and processes counselors and human development specialists can bring to bear on these problems will not create jobs or career opportunities. The education and training which can be developed and delivered effectively cannot create jobs. There can be useful assistance to ameliorate the immediate grief, provide accurate information about other job opportunities and how to prepare for them,

facilitate the development of job access skills not only for the unemployed, but also for dependents and children experiencing the backlash from these events.

Job availability and unemployment situations are neither consistent nor predictable for specific geographic areas or industries. A local situation may change abruptly. There are situations where the upheaval has caused expanded opportunities and abundant work. For example, more clients are available to persons in job placement services. Agencies serving persons suffering abuse or marital discord experience increased activity. Some handicapped are made more independent and employable by new technology. Gifted persons who adapt quickly have new and ample opportunities. Obviously, those with an experience base in computers, communication technology, robotics and related industries will probably benefit greatly in the short run. However, even those persons can experience the trauma of rapid change. A case in point is the recent abrupt announcement by Atari that it was reducing its work force by 1,700 jobs in California and opening plants in Asia, where a more cost-effective labor force prevailed.

Looking at longer range prospects causes one to examine special regional factors and specific sub-populations. For example, the prognosis for employment in the Sun Belt states continues to be better than in other geographical areas. Since high technology and space industries have a heavy

concentration in the West, the prognosis for job growth there is good. Over half the high technology plants are in 10-12 western states, particularly, California. There is a likelihood that these changes will widen the gap between the haves and have nots at least in geographical terms.

There are some probable long-range losers. Many repetitive industrial tasks will be done by robots and many assembly processes will be computer operated and monitored. Thus, many unskilled assembly workers will be eliminated. As industry requires more manual dexterity and less brawn and strength, the shift to the information society and to genetic engineering will require a yet to be determined number of persons with greater educational development, greater manual dexterity and ability to concentrate to perform more complex tasks. Positions such as postal clerks and secretarial/clerical specialists will be adversely affected by machines capable of reading, sorting, taking oral commands and even writing from oral dictation. To date, file clerks have been replaced by new ways of storing and retrieving information, and the keypunch/data entry specialists have been bypassed by those who provide input to computers through others at terminals.

The winners list in a long-range view is impressive:

Inventors

Technologists

Gifted

Handicapped

Highly motivated workers

Free-lancers/entrepreneurs

Farmers

Medical specialists

Leisure industries and workers

Researchers

Technical writers

Data managers

Communications specialists

The growth industries for the 1980's are generally predicted to be:

Materials research and design

Information technology

Robotics

CAD/CAM/CAE--Computer assisted design
manufacturing and engineering

Biotechnology

Health and medical technology

People, Work, Work Places are Undergoing Transformation

The global information and economic upheaval has focused much attention on the American worker productivity,

institutions, traditions and the workplace. Other nations have created new work processes and traditions which have allowed them to out compete America in productivity and in many instances in cost effectiveness. International developments in the hard and soft goods sectors have been extensively reported and discussed. American management, workers, unions and investment specialists have all come under fire as sharing blame for our losses in the industrial sector. All have experienced damaged images and are undergoing change.

There is joint involvement of workers, unions and management in searching for improved competitive processes and productivity. The analysis of foreign industrial/management processes and transmission of this knowledge to our industrial organizations has been rapid. A few changes or shifts seem clear. Workers will increasingly participate in work planning, work evaluation and goal setting and receive more training and upgrading. There will be less top down decision making and more direction setting from the bottom up. Quality circles are becoming commonplace. More work will be subcontracted to cottage industries. The notion that bigger is better is waning, and smaller organizations and job clusters are likely to emerge as the primary industrial management configurations.

People will be more oriented to self-help and networking to facilitate coping, learning and self

improvement. The changing vocabulary of the new technologies will be matched by a changed vocabulary in the world of people interaction. Out placement, job access skills, assertive training, brokering and networking are, for example, phrases not used 25 years ago. The people in our society will desire and need help and a large measure of self-confidence to cope with these developments.

Work for Americans has been a very significant element in their personal identity. If an increased number of persons are unable to be employed in the traditional paid manner, there will likely be a redefinition of work and jobs. A participant in our technology task force drew an analogy to the Japanese tradition of carrying a shrine through the cities on a festive occasion--80 percent work hard and carry the burden; 10 percent loaf along and do nothing; and 10 percent hang on and ride. This is acceptable if the two smaller groups trade off periodically with the 80 percent who bear the burden. We may well learn to share work and leisure in new ways. It is likely that a share of the population now employable will not be employable in the future because they lack sufficient talent, intelligence or potential to enable them to be prepared for the work which will exist. The traditional work ethic will be challenged by these changes. We will view idleness, leisure, volunteerism and "down periods between jobs and careers" in new ways.

Learning, Teaching, Training and Education

American education has been relatively inventive in responding to the changing learning and developmental needs of our people. As we forged a democracy, moved from an agrarian to industrial society, engaged in wars, set out to conquer space, and exploited our resources for a better life, education has repeatedly met these changing demands. We are, obviously, in the midst of another major challenge for educators.

Two immediate national priorities seem to be as follows: (1) devote attention and effort to basic education with emphasis on mathematics and science, and (2) create new long term approaches to train and retrain workers with obsolete skills and knowledge so they can gain access to emerging work opportunities. The Congress is attuned to both of these matters and will probably enact legislation and appropriate funds related to some form of resolution of the education/training issues involved. Education in the traditional sense will be heavily involved in the tasks of basic education, but to an unknown or yet to be determined level in worker retraining and rehabilitation.

Technology and, particularly, computer technology has had a significant effect upon American education. How we store, and present information or knowledge has changed. As a result, the functions of teachers, counselors and other

educators can be altered toward more useful tasks. The computer in its interactive mode can be an excellent learning system and teaching procedure. The new information systems and relatively easier access to microcomputers will accelerate these changes. Computer or information technology and literacy will not be enough for students, teachers or counselors. Problem-solving and analytical thinking are approached differently with computer and information assistance. Youth experience with and confidence in these technological devices frequently outstrips that of their teachers. There will be much greater change in the teaching-learning relationship as computers are more readily available.

Massive retraining and training for educators will be required. In spite of an arrested growth and now some decline in school and college enrollments, we will probably experience critical shortages in many teaching/educational areas to a degree equal to those shortages we now have for math teachers, science teachers, rural counselors, etc. There are encouraging signs that the nation's leaders in all areas--industry, business, military, science and medicine--are aware that we have allowed our educational enterprise to decline even though its importance to the nation's future will increase.

What Does This Mean For Counselors and Related Specialists

First and foremost, counselors and other guidance specialists in schools and colleges must be involved in the revitalization of how we teach and educate. It is imperative to recognize that counselors and human development specialists are prepared and capable of helping with a broad spectrum of tasks which can facilitate necessary changes in people's coping ability, and, more importantly, assist them to learn skills and information necessary for future inevitable changes in their lives and lifestyles. Counselors' roles and the populations they serve have both expanded and changed in the past 75 years. The early emphasis in schools and colleges was upon vocational and career guidance, development and counseling. In the 1950s and 1960s demands for more scientific personnel and the rapid expansion of education changed roles for counselors and compelled development of new techniques and skills. Counselor affective and personal adjustment skills primarily developed in educational settings were transferred to non-school settings. Among population groups with whom counselors now work are aging persons, public offenders, substance and people abusers, couples experiencing, marriage and family discord, and persons receiving mental health assistance from community agencies. In recent years counselors have been increasingly provided opportunities to work in business and industry. These services are usually called employee assistance programs or human resources

development. In the future, professionally educated counselors will be in more demand by society because of the individual and collective helping skills they possess and the relationship these skills have to the resolution of the multiple transitions which advanced technology will require of youth and adults.

It must be acknowledged that some practicing professional counselors are not prepared emotionally or technically to help people adjust to the changes occurring. Information technology awareness, or computer literacy will not substitute for counseling skills and processes which teach how to cope with stress or assist in helping individuals prepare and retool for new careers and job opportunities. Some counselors will need personal and professional renewal as prerequisites to their ability to work with the new populations needing help.

The roles, functions, techniques and tools of counseling will be strongly affected by the shifts created by information technology. Alterations in how we access and manage information necessary for client decision-making have already occurred and will accelerate. Counselors must become literate in economic systems, labor market theory and the dynamics of the changing world of employment and careers. They will need to respond to the pressures upon them which encourage and direct school clients to focus their talents and goals solely on mathematics or science. Counselors must

help employers and policy makers understand the difference between possessing the manual dexterity necessary to build and maintain electronic gear and having the abilities and talent necessary for successful achievement in high level mathematics and sciences. Errors made in overpromising and concentrating too heavily on more gifted students in the NDEA and Sputnik eras must not be revisted, or we shall face again the just criticism that the school counselor's attention to talented and college bound students resulted in "short changing" those who needed career planning and job skills more quickly. Stated otherwise, we must resist the role of gatekeepers and emphasize the development of occupational and general coping skills necessary for all persons served.

The remedial, restorative and supportive processes and skills developed in the counseling profession are precisely those needed to help persons undergo the shocks and stresses of change. Occupational information and opportunites can be assembled, analyzed, synthesized and disseminated easily in this computer age by sharing banks of data via speedy retrieval mechanisms. The "know-how" is there to be expanded and made accessible. Helping people access community resources and services, and maximizing the use of these capabilities and residual resources will help carry people through these adjustments. Educational, training and retraining programs will be needed in unions, industries, communities and social agencies. Counselors' group process/facilitation experience as well as knowledge

networking are central to efficient delivery of a variety of services which are urgently needed.

In summary, the who, what and where of work, jobs and productivity are in flux and are affecting people in new ways, improving the lot for some, displacing some, making some seek retraining and, certainly, impacting people in myriad ways. Counselors and related specialists suffer these same traumas, yet they must utilize their skills and knowledge to help others deal with the realities and opportunities of the current transitional era.

How Can Counselor Education Respond?

Historically, counselor educators and their training programs have responded slowly to changing demands on counselors. Too often they have been merely reactive or, at worst, resistant to changes. The waves of high technology and the complexities of an expanding information society will, in all likelihood, be so persistent and strong that change in counselor preparation, curriculum and teaching methods will be forced upon institutions. In the past decade resources (funding and personnel) for human services and the education and preparation of providers of services have dwindled seriously. Prospects for large infusions of funds are not good. In far too many counselor education programs, we have been unable or unwilling to utilize technology now

available. The accountability and cost effectiveness requirements faced in our educational institutions demand not only inventiveness but useful documentation of outcomes. Statesmanlike communication and interpretation to the decision makers in our educational communities and govermental agencies is required. Attention will be focused on upgrading and improving our counselor preparation programs. Information management and access, new labor market data and improved teaching materials will continue to be developed. Attention must also be focused on guidance directors and agency leaders to help them improve training for a new wave of counselors and human development specialists and at the same time attempt to upgrade and retrain those continuing in existing roles or who are displaced because of changes in the population they serve.

Counselor education curricula must be modified. The simple process of adding courses or new requirements is unlikely as it will be unaffordable. Substitutions or replacements will be more likely. New program offerings such as economics, business management, and labor components must be infused in all programs. Lifespan career development courses must be modified to acknowledge the realities of persons faced with multiple-role and multiple-career requirements. The standards for credentialing counselors (accreditation of programs, licensure or certification of individuals) will need to be monitored and modified more frequently to remain tuned to the rapid changes. The skills

and knowledge needed for statesmanship, political action and public relations must be developed in a greater proportion of our professional members if we are to communicate effectively with decision-makers in the legislatures, industry, business, the military and communities.

Meeting in-service requirements for counselors will be most directly achieved by the use of high technology information/communication delivery systems. AACD and its component groups must provide the major leadership here. These experiences and opportunities will need to be delivered in more economical forms than those traditionally associated with costly travel. Creation and development of learning packages and delivery systems should become a significant AACD responsibility.

What Can Professional Counselors Say to Policymakers?

The group which assembled to analyze and consider the developments associated with the movement to a more highly technologically oriented world explored three questions:

What should we say in a memo to the following?

A. The Congressional Office of Technological Assessment.

B. The Congressional Chairpersons of Education Committees.

C. Our own leadership at the State, Divisional and Regional levels.

The group agreed that with the Office of Technological Assessment, we would need to stress the secondary impacts of advanced technology of a social, emotional or mental health nature, and the availability of skilled counselors and related persons who can help with the multiple transitions created. The expertise of such professionals can provide information about real developments in the labor marketplace in useful forms for various populations. We would caution the Office of Technological Assessment that short-term, simplistic solutions to long-term problems often yield unexpected outcomes and secondary problems. If, as the Secretary of Education stated, decisions by adolescents about taking math and science are too critical to permit students to make, and therefore a curricula requirement should be substituted, we create serious problems for many. Some students will not succeed and drop out of school with little opportunity to develop other talents and abilities. High technology requires maintenance persons with dexterity and coordination as well as designers and creators with higher intelligence and knowledge. Education and training for life-coping skills necessary throughout a lifespan are important. People live as well as earn a livelihood in a high technology age. Those reviewing and assessing technology must be sensitive to an emerging class of persons in the labor market who will be "unassumable,"

"unemployable," or, at best, difficult to employ under current values, assumptions and priorities. We must be assertive in delivering these messages to the leaders who will forge a nationwide program to deal with the transition to an information society.

To the Congressional Education Committees and those in similar roles at the state level, we should stress the varied roles for counselors and related professionals in a new age. We must aggressively demand inclusion of human service and development components in new laws. We must remind those developing math and science education bills that all students cannot benefit or learn from such academic content. Math and science tasks can be differentiated, and the assessment and measurement skills of counselors will be needed to identify gifted and talented young people so that talents and interests might be fitted to our nation's needs. Every student has talents and abilities which can be identified and utilized. Counselors and guidance specialists can help build relevant curricula and programs to enable people to learn to cope effectively in the changing world. Counselors will be useful in delivering desensitization activities to deal with math and science fears and to eliminate male/female stereotyping. We must help policy makers learn that high technology jobs and tasks may be broken down through job analysis. High technology jobs encompass mechanical comprehension, spatial visualization and dexterity as well as the logic and methods of math and science. We must encourage

development of legislation which addresses the spinoff problems of family members struggling with the stress of unemployment and related economic problems.

Our profession's leaders at the National, State, Divisional and Regional levels must be creative in developing activities and programs to help their colleagues accommodate themselves as persons and service providers in a new society. In some cases, this will require eliminating personal fear and stress problems; in others, creating a literacy about technology; and in some, initiating in-service training in the use of technological methods and means. Any public stereotypic perceptions of counselors as gatekeepers and schedulers must be eliminated. The role of counselors and related specialists in agency and educational settings must be altered to that of facilitative change creators. The identification and dissemination of successful methods, programs and knowledge resides squarely on our association leaders at all levels.

Specific high technology related activities of the American Association for Counseling and Development are still evolving. Several specific things are in place and underway. The 1983 Washington Convention featured a special emphasis on counselors and work. The theme or the 1984 Houston meeting embraces high technology and an information society. A special major theme session with industrial and military leaders interacting with our leaders was presented in

Washington, and a video-tape has been released for use in education, workshops and state meetings. A special committee to look at the impact of high technology on the profession has been created by the Board of Directors. The Association for Counselor Education and Supervision conducted a special conference on the topic with emphasis on counselor preparation implications and issues and continued that theme in fall 1983 at regional ACES meetings. Hopefully, this paper will be widely distributed as a stimulus document for our leaders. Headquarters staff is seeking information and identifying persons involved in creative high tech/high touch activities so a talent bank and clearinghouse for programs and efforts might be established. People knowing of creative activities are urged to address them to headquarters with "Attention: High Technology" indicated on the envelope. We urge all members of the Association to become assertive in addressing your concerns and hopes in the transitional period in which we live.

APPENDIX A

Persons Who Wrote Responses

to

AACD Headquarters' Request for Information

High Technology Changes/Counseling

John A. Bailey
Juliet V. Miller
William J. Weikel
James J. Muro
Phyllis L. Mable
C. Gilbert Wrenn
George M. Gazda
Larry C. Loesch
James R. Barclay
Kenneth B. Hoyt
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Bruce Shertzer
Edwin L. Herr
Mary F. Maples
Lee J. Richmond
William J. Erpenbach
Helen Washburn
David Capuzzi
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Patricia Hooper
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Harold E. Cheatham
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Anita M. Mitchell
Judy H. Lombana
Donald G. Hays
Ann L. Upton
Donald G. Zytowski
Roger F. Aubrey
Louise B. Forsyth
Philip A. Perrone

APPENDIX B

Persons Who Were Assembled
to Analyze and Discuss the Issues of Technology
and its Effect on the Counseling Profession

Helen R. Washburn	Donald E. Super
Edwin L. Herr	Patricia Hooper
Roger Aubrey	Larry C. Loesch
Lee J. Richmond	P.J. McDonough
William J. Weikel	Charles L. Lewis